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# FORESTRY LABOUR OF JAPAN

Takeo YAMASAKI\*

## I

Forest land in Japan covers an area of 61,131,400 acres which roughly corresponds to 67% of the total national territory. Its growing stock is estimated to be 1,838,000,000 m<sup>3</sup> which has increment of 50,500,000 m<sup>3</sup>, and thus the forestry is playing an important role in the Japanese national economy. Out of the total forest land 30% of it belongs to the state, 14% goes to public ownership and the remaining 56% is privately owned. These distributions are characterized by the presence of a vast area of state forests and also by the excessive concentration in the private ownership whereas there are tremendous number of petty timber-land owners. Speaking more concretely, while 94% of all the private timber-land owners whose land is 5 chos or 12.25 acres or less occupies but 41% of the total forest land, the owners of timber-land of 122.5 acres or more who are only 0.3% of all, possess 22% of the total private forest areas in Japan.

Besides above, most of the said private owners are farm landlords and this shows there are close relations existing between agriculture and forestry in Japan.

The forestry in our country has developed since Meiji Restoration, centering around state forests that had been brought into existence in a process of the primitive accumulation, first with its emphasis placed on lumbering, then later on silviculture, but a great change has taken place after the war with the back-ground as described below:

In the first place, because of the unification of forestry administrations and of the establishment of the Special Account of State Forestry, a program has been worked out for the modernization of forestry administration and for its management as an enterprise.

Secondly, the pre-war wood-pulp capitals that had been heavily dependent upon the colonial forestry have come to advance into the private forests in the homeland due to the entire loss of our colonial territories, while the expansion of the industries that require log as raw material tre-

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mendously boosted the demand for log. On top of that, the ever-growing requirement for timber for housing coupled with the decrease in the import from abroad entailed substantial price-rise of timber.

On the other hand, even the small-size timber has come to take up greater commercial value due to the changes taking place in architectural mode, and this, in turn, is urging the forestry to make earlier felling so that the period of capital turn-over will be shortened. All in all, these made the lumbering very active.

In the third place, the landlords who lost the main income source of farm rent due to the Farmland Reform have had to switch their "forest as an asset" to the "forest as an enterprise", while farmers themselves have come to use greater efforts for reforestation. Thus the modernization problem of Japanese forestry has come to be highlighted.

In this paper the author tried to analyze the status of labourers in Japanese forestry having the socio-economic backgrounds as described above, particularly in relation with its modernization problem.

The size of the labour force in this industry varies much according to the various surveys made. Some report that there are 640,000 workers, while some others contend that nearly 2,320,000 workers are engaged in forestry. Such discrepancy comes of course from the different methods of survey, but is largely due to the fact that the forestry labourers are mostly part-time workers (73% of them belong to such category according to the survey made in 1951) and thus the size of the labour force in question fluctuates greatly with seasons. Besides, the definition of forestry labour is very comprehensive. It covers not only the workers engaged in reforestation that consists of such operations as nursery, afforestation, tending, etc. but also the labour for lumbering, hauling and transportation, firewood and charcoal making, as well as such civil engineering work for erosion control and the construction of forest road etc. There is some times a case where timber industrial workers are also placed under the category of forestry labour who, however, are rather to be considered industrial or commercial workers, while the said civil engineering workers are supposed to be engaged in a very special aspect of forestry.

Thus, this paper deals only with the labour limiting to the forestation, lumbering, log hauling and transportation, the operations inherent to the forestry.

Though the forestry labour has much in common with agricultural labour in that it has to do with the soil, the former has still various features different from the latter; for example, it is more of extensive culture, and is more of side-job, has greater seasonal nature besides being of non-regular

employment and is physically harder job.

The forestry labour differs much in its nature from each other according to the operation and even within the frame-work of same division of labour, it varies according to the different technical stages, besides there is much unbalance among the different regions. Therefore said features inherent to the forestry should be studied as to the actual conditions existing in each division.

First let us see its technical aspects. The labour used for afforestation, starting with nursery, through forestation and aftercare is the manual work using such tools as ploughs, sickles, hatchets, saws, etc. but it is easier when compared with lumbering. The jobs of afforestation consist of such operations as weeding and grading, planting, supplementary planting, weeding and other tending, cleaning-cutting, vine-cutting, lopping, thinning, etc. The weeding and grading is made before planting which is further divided into spring planting and autumnal planting.

Weeding and other tending is annually done for several years after planting, then it is carried out every other year either during summer or autumn till 14th or 15th year. Vine-cutting, lopping and cleaningcutting are mostly performed during the winter but the time of thinning depends upon the forest growing condition and also upon the objective products.

Among these, the largest labour-consuming operation is planting which is followed by weeding and other tending. One feature common to all of them is that they are very seasonal which is inherent to the afforestation labour.

However the cycle of afforestation is very long where the labour is concentratedly invested in planting and weeding and other tending and thus afforestation labour is of extensive nature. Besides, it is generally a light labour, except for thinning, cleaning-cutting, cutting and lopping, which requires no special skills, and is not a hazardous operation. Thus no small number of women and aged workers are hired for afforestation.

#### Lumbering Labour

The process of lumbering is divided into felling, logging, hauling and transportation. Logging operation is further broken down into bucking, peeling and trimming etc. All of these jobs are manually performed with use of axe, saw, wedge, sickles, etc. that privately belong to the labourers, and naturally the technics employed by them are on an extremely low stage. A note-worthy change that has taken place since 1956 is the introduction of chain-saw into a part of state forests which is gaining popularity, and recently in some of the privately owned forests in advanced forest lands, the use of chain-saw is also being tried.

According to a survey made as to the state forests, the employment of chain-saw has brought about increased output, quality improvement of logs, reduction of heavy labour, shortening of working hours, decrease in labour accidents and entailed substantial changes in the felling and logging operations, but on the other hand, it results in the increase of auxiliary jobs and mental burdens, and, last but not least, the decrease in the actual wage income. (Forestry Agency: *Mechanization of Forestry and the Problem of Labour*, p. 8-28). Thus anti-mechanization movement among the workers engaged in the state forestry has come to take place. Such movement is generally seen in the process of mechanization and though the employment of machines in forestry is still so far considered rather an exceptional case, it is anticipated to be intensified in the future.

The felling as well as logging operations by the conventional manual labour mean not only harder work than any other forestry operations but they also require higher skills (it takes several years before a worker becomes full-fledged skilled labor).

Therefore it is often the case that they start first with other forestry jobs particularly of hauling and transportation and after having had enough experience thereon, they move to felling and logging and stick thereto.

Next, hauling and transportation are done by means of manpower, draft-animal power, machines and by way of rivers. They are, however, carried out by a multiple combination of various operational methods depending upon the topography of the area in questions. Followings are some of the typical combinations.

(Forestry Agency: *Forestry of Japan*, 1957, p. 102)

Truck way	Cart way	Wood sledge Ox and horse way
Truck way	Cable way	
	Wire carriage	
Rivers	Wood sledge	
	Ox and horse way	
Cable way	Wood sledge	
	Skidder	

The log hauling and transportation in Japan has long been done mostly by man-power or by river and partly by snow sledge, wood sledge (called wood-horse) and chute. It was as late as in 1899 that the forest road was constructed in the state forest while the rail-road for state forest was constructed for the first time in 1911. Then mostly at the initiative of the government and the local governments, such forest roads have come to be opened up also for the private forests, while the rail-way was con-

structed in a limited part of the forest zone.

However no remarkable progress had been made in the forestroad construction until around 1926. Later in 1932 when Japan suffered depression, 5-year program for the promotion of forestry industry and the economic aid program for the agrarian people were put into practice whereby forest-roads had energetically been constructed. Thus the new forest-roads extending to some 10,000 km have been opened up with emphasis placed on the construction of small scale roads for the private forests.

After the second world war, the building of the forest roads net-work has been much accelerated by the water-power as well as the forest-resources development projects.

Forest roads consist of truck ways, cart ways and ox and horse roads which have respectively the width of 3-4.6 m, 2.5 m and 2 m.

Thanks to the construction of such forest roads, the transportation by truck has rapidly increased after the war in place of forest rail-ways. In 1955 the forest rail-way ran the total distance of 7,023 km while various forest roads covered the length of 70,459 km.

The method of hauling by cable ways and wires had come to be employed since 1920 for the purpose of reducing transportation cost, and its technique has, in the meantime, much improved and got popular particularly after the war.

On the other hand, primitive water transportation is still practised by so-called floating and rafting, but because of the expanding net-work of forest-roads, construction of dams and by the damage caused by floods and also due to its disadvantage of time-consuming way of transportation etc., such conventional method is gradually losing ground and is being replaced with the land transportation.

Though a technical consistency is necessitated to realize within one series of operations, in the case of hauling and transportation where the technical levels among various operations differ so much from each other, one operation that already attained a higher technical standard regulates the lower ones, or more concretely speaking, the mechanized operation for one job regulates those using animal-power and man-power.

Therefore, the man-power used for the hauling and transportation which is already far harder than that used for machine handling becomes all the more intensified to the disadvantage of the worker in question.

In case of the labour for hauling and transportation, comparatively few will stick to a given job, except for the machine handling and wood sledge hauling, in comparison with that of felling and logging, but there still is a tendency to stay with it as referred to later.

The labour for felling, logging, hauling and transportation in the lumbering process is hard and therefore they are performed dominantly by man-workers of young and middle age but the intensity of work varies according to the type of operation, which naturally gets easier by the degree of mechanization.

Moreover the said labour is of less seasonal nature in comparison with the reforestation labour. Particularly as the log output increases, the mechanization advances and the labour amount tends to less fluctuate throughout the year.

Above is an observation made as to the forestry labour in relations with the forestry technics and now its socio-economic characteristics is examined in the following chapter.

## II

In the silviculture, since the capital turnover takes a long period, lumbering of natural forest is first conducted and then afforestation is started. The large scale reforestation had began to develop in Japan only after the middle of Meiji Restoration (after around 1890) when capitalism was in the process of taking root in our country, but during the Meiji era and the early part of Taisho era (up to around 1916) those who played major role were mostly large forest owners as far as privately owned forests were concerned, and then it permeated into small and medium-size forestowners.

Since the termination of the second world-war, reforestation has come to be very active due to the timber business boom, and the ever expanding. Thus the possession of forests is assuming stronger feature of being an enterprise rather than an asset.

Silviculture is conducted at the responsibility of the owners of forest. Aside from the existing state and public forests, the types of private ownership are, however, multifarious.

There are a capitalistic ownership, the ownership of landlord type and also that of peasant farmers.

As described above, though the ownership of forests in Japan is closely connected with that of farming land, there also exist forests belonging to the plutocrats or those owned by the big capitals of pulp-paper industry.

Let us first observe the socio-economic features of reforestation labor.

In order to see what form of labour is employed for reforestation, a survey made by the Ministry of Agriculture and Forestry is presented here.



Table 1. Percentage of the type of labour employed for reforestation, 1954

Type Scale of Forest	Self-labour		Hired labour		Requested others in exchange of labour		Others		Total
	Plant- ing	Tend- ing	Plant- ing	Tend- ing	Plant- ing	Tend- ing	Plant- ing	Tend- ing	
below 1 cho	73.3%	92.6%	24.3%	7.3%	0.4%	0.1%	2.0%	—%	100%
1-5 cho	7.47	78.5	24.6	19.8	0.4	0.8	0.3	0.9	"
5-10 cho	67.8	66.4	30.7	31.4	0.9	0.8	0.4	1.4	"
10-20 "	49.4	50.1	49.6	48.8	0.6	0.5	0.4	0.6	"
20-50 "	30.5	28.8	68.5	70.7	0.2	0.4	0.8	0.1	"
over 50 cho	5.5	4.7	89.9	94.9	0.1	0.1	4.5	0.3	"

Remarks: M.A.F.: *Outline of the survey made on the private forests*. Prepared from Table 33, 36 (Hokkaido is excluded)

1 cho =  $2\frac{5}{6}$  acres

Viewing from the management scales of forest:

- (1) Relative weight of self-labour for reforestation is higher than that of lumbering labour.
- (2) The Relative weight of self-labour is higher as the scale of forestry management gets smaller.

Within the bracket of 10-20 chos, self-labour and the hired labour gets almost even but for those less than 10 chos, the proportion of self-labour is overwhelmingly large. For the bracket of management scales over 20 chos, this ratio becomes reversed and particularly for the brackets over 50 chos. More than 90% of them are depending upon the hired labour. This means that in the case of small-scale forest owners, reforestation is done just as their side-job or as a means of petty manufacture of articles.

Now there are various types of procuring the labour for reforestation, of which the major ones practised so far are presented below: (I. Kaihara: *Forestry Policy*, p. 228-229)

- (1) Taking direct advantage of the tenants, landlord employs the tenant labour as a "hired labour".

This practice is quite feasible because there is a time gap between the farming season and the reforestation season.

- (2) In exchange for allowing the farmers to collect grasses from the forest, the landlord set the farmers to work reforestation. Theoretically this is what the landlords are demanding the farmers to repay the grass-collection fees with their labour services.
- (3) In the areas where the reforestation has a little advanced, grass col-

lection is generously allowed but such practice is in itself constituting an act of reforestation in that it contribute to the up-keep of the forest.

This means, however that the farmers are investing excessive labour for grass collection under unfavorable conditions when they could dispense with such labour by using chemical fertilizers instead of depending upon green manure.

- (4) At the current stage of Japanese forestry, there are many instances where a rotation is conducted between the farmland created by bush-burning and reforestation and vice-versa, in the neighborhood of marginal area of farm-land.

In this case, the tenant farmers are generally turn back to the landlord the farm-land after making reforestation of the area in question.

Such development process of reforestation has been the cases experienced by most of the advanced area of forestry before they reached the status as they are today.

However, the methods of procuring the labour for reforestation as described above are believed to be changing a great deal.

The Farm-land Reform enacted after the war has exercised a great influence. Namely the relations between the landlord and the tenants which had often been called semi-feudalistic system, has been almost liquidated, and thus the method of securing the labour taking advantage of such landlord-tenant relations is rapidly disappearing, and the method of procuring the service for reforestation in exchange for the utilization of the weedy land is also losing its ground. According to the survey made by the Ministry of Agriculture and Forestry "on the Current Situation as to the Utilization of Forest Lands", 10% of the forest-land belonging to the individuals, corporate company and local bodies practises the method of securing the labor in exchange for the grass taking by the farmers in the mountain villages, while it is only 1% in case of public forests, and as the matter of fact 70.2% of the forests belonging to the former group allows the farmer to freely get the grass, while 76.7% of the latter does the same. (Ministry of Agriculture and Forestry: *Survey on the situation as to the utilization of forest-lands, outline of the Second Survey Results*, p. 22).

It is however worthy of noting that the relative weight of the grass collection free of charge is high in the mountain villages.

Further, such rotation system between burnt field and reforestation as described above is gradually disappearing as the reforestation develops, and the survey made by ourselves also revealed that such rotation system has been completely done away within the advanced forestry areas. Thus it is safe to say that the conventional methods of procuring the labour are fal-

ling off but in the less advanced villages in the mountainous areas, the old relations between the landlord and the tenant still partially exist whereby the labour procurement is conducted.

Here, I would like to refer to the method of forestry administration as often being practised by large forest owners in connection with the labour procurement for reforestation.

Most of the large forest owners are absentee land-lords and they have custodian to take care of their own forests. These custodians are the persons of influence in the local community who are the owners of medium-small size forests and they also procure the labour for reforestation of the area under his custody. Such custodians, however, receive no fixed pay and in most cases they are paid 2-3% of the selling price of the timbers of the forest under his custody when they are sold.

The forests owned by farmers are of small scale and the reforestation work is done primarily by the self-labour as described above but even for the forest of less than 1 cho, the hired labour is partially used. In this case the labour exchange is seldom conducted, and the employer-employee relations are of horizontal on the basis of equal footing.

We can thus summarize that for the reforestation, small forest owners primarily use self-labour, while large-size forest owners depend upon the hired labour, but the labour-procurement method in case of using hired labour is gradually changing from the conventional or feudalistic one to that based on the modern, contractual relations.

Now, however, the reforestation greatly counts upon the small farmers in the local area for required labour, because since reforestation work is seasonal and therefore of tentative nature besides being comparatively a light labour, it also suits very much for farmers, regardless of sex, to work for reforestation as their side-job. They are suffering, without exception, potentially excessive population and thus, since they engage in wage-labour to eke out their subsistence, their wage level is inherently low.

This tendency toward low-wage is further intensified by the labour participation of the aged men as well as of women. Further, inasmuch as the reforestation is seasonal and of temporary nature, the dominant form of employment therefor is day-labour while partially contract system is practised.

The major tree species used for reforestation in Japan are sugi, hinoki followed by akamatsu and karamatsu but as yet the proportion of natural forests is far greater than the artificial forests.

Now, we are going to see more concretely the socio-economic aspects of reforestation labour, and an observation is made in this chapter by referring to one example of the survey we conducted. The subject of this sur-

vey was N. company, a capitalistic owner of large-scale forest of 5,000 chos who was conducting a consistent operations from nursery, reforestation and lumbering, using 383 workers in 1958, of whom 176 were for reforestation. However a study is made here as to the reforestation labour in one section among others.

The number of workers engaged in said section was 60, of whom 37 were male (61.7%) and the remaining 23 were female (38.3%). Their age distribution was :

20-30 yrs. old	28
30-40 "	12
over 40 "	20

Thus the largest proportion was occupied by those ranging from 20 to 30-years old and it reached almost half of the total workers but the number of those over 40 yrs old was not small and the total average was 34 yrs old.

By sex, male workers occupy slightly over half for those whose age were 20's but 60% of the female workers were of age ranging from 30 to 50 yrs. old.

When they are classified by the family position, householders came atop by 42% which was followed by housewives of 32%.

Now let us see the working days per annum and per month.

Table 2. Number of Workers classified by the working days per annum and by working months.

Working days  Working months	Below 10 days		10-25 days		25-50 days		50-75 days	
	Nos. of work- ers	Work- ing days	Nos. of work- ers	Work- ing days	Nos. of work- ers	Work- ing days	Nos. of work- ers	Work- ing days
1 month	43	157	4	56				
2 months	3	22	5	81	1	26		
3 "	2	12						
4 "							1	72
Total	48	191	9	137	1	26	1	72

In the first place, the average yearly working days are but 8.8 days and according to the classification by working days, those who worked less than 10 days per year occupy 80%.

By sex classification, the male labourers who worked 10 days or less occupy 70% while those of 10-25 days 22%. In case of female labourers, those worked 10 days or less occupy 96%. This means that the working days of male labourers are more than female and particularly those who

worked more than 25 days per year were all men.

Next, when viewed from working months, all of them worked less than 4 months and the overwhelming majority (47 workers or 78.3%) worked only one month. Here again working months of female labourers are less than man-workers.

Looking into their type of work done, planting of sapling during the spring concentrately takes up labour which is followed by the weeding and other tending toward the end of the summer until early autumn. Male workers conduct both said jobs while female workers engage exclusively in planting of seedlings.

Here the seasonal and provisional nature of reforestation is so clearly revealed and it is particularly so with the case of female labourers.

N company has been yearly conducting a large scale systematic reforestation since around 1920, but the average length of service of the workers is 6.7 years in case of male employees and 1.9 years for female, while the length of service as to more than half of them is less than 3 years.

Even under such large corporate management, the reforestation labour proves to be rather unstable, and it is easily inferred how mobil it is in the case of small scale reforestation. Then, how about the years of experience in the forestry labour? Their calendar years of experience are quite long for both male and female workers and the average is 14.7 years for the former and 16.9 years for the latter, but the net years of experience are less than

Over 75 days		Total		Average working days
Nos. of work-ers	Work-ing days	Nos. of work-ers	Work-ing days	
		47	213	4.7
		9	129	14.3
		2	12	6
1	100	2	172	86
1	100	60	526	8.8

10 years for both and the average is 2.3 yrs for male and 0.5 year for female, thus the net rates of experience years (the rate figured out by dividing the net years of experience by the calendar years) are low, viz. 15.6% for male and 3% for female.

Further, the rate of employment period of forestry labour

$$\left( \text{rate} = \frac{\text{Net years of experience}}{\text{Age (current)} - \text{Age when finished school}} \right) \text{ is}$$

18.2% for men and 1.8% for women.

This also clearly shows that the reforestation labour has an aspect of side-work and is of interim nature.

Most of these workers engaged in reforestation are the members of the family of small farmer. Thus the reforestation workers are defined as the

labourer of semi-farmer type.

In other sections of N company, 5 workers who were exclusively engaged in the reforestation, completely severed themselves from farming. Though such "reforestation labourers" are partially found in the state forests and large-scale forestry enterprises, it still is an exceptional case at the current stage of Japanese forestry.

### III

We are now going to scrutinize socio-economic aspects of the lumbering labour. In the forestry, the ownership and the management are not separated but the merchandization of the standing trees by the forest owners in Japan is conducted as they are standing. Such practice differs a little according to the scale of forest owned, and in case of the owners of the forest less than 1 cho as well as in the case of large forest owners, sometimes standing trees are cut down by themselves for sales, and yet this is very exceptional, while the tree cutting for industrial purpose is mostly done by the large forest owners as conducted by pulp-paper companies. However even for such cases where the felling is done for the industrial purpose, it is very seldom to hire the labourers. Therefore, it is quite useful to study first the specific nature of the lumbering enterprises. Now the salient points are given here by referring to the nation-wide sampling survey conducted by the Ministry of Agriculture and Forestry (MAF: *Survey of Lumbering Dealers*, pp. 2-16).

According to this survey, 58.2% of them are individual operators, 37.5% corporates, 2.5% are forest owner's associations and those belonging to others category are 1.8%, while according to the classification made by the output scales of log, the overwhelming majority are those handling less than 10,000 kokus, namely 96.7% of individual operators and 82.8% of corporate enterprises are those whose output is less than 10,000 kokus.

Particularly the individual operators are mostly of very small size and 43.2% of them are those whose timber output is less than thousand kokus.

If classified by whether the merchandization of timber is done by direct operation or based on contract, the former is most popular which occupies 83.3% of the total, while the latter 8.6% and the weight of those who perform both is 8.1%.

The direct operation of lumbering business means the lumbering of the standing trees of own forest as well as that by purchasing the standing trees from others.

Among those who are making the direct lumbering operation, some are concurrently consumers of logs whose percentage amounts to 62.1% but the

majority of those belonging to this category are saw-millers who occupy 82.8% followed by other timber fabricators, civil engineering and building contractors, pulp manufacturers in that order. Those who are specialized in lumbering, that is, those who engage in the production of log and its sales occupy 37.9% but their size of enterprise is smaller than the former. In the case of contractor, most of them are saw-millers who are followed by timber dealers and pulp manufacturers and when these three are put together, it occupies about 75% of the total. In both cases of direct operation and of contract basis, there is a definite tendency that the small-scale lumbering operators tie up with the timber dealers or saw-millers of small capital, while large-size lumbering operators with large capital like pulp manufacturer. When the status of forest ownership of lumbering operators is observed, those who more or less own the forest occupy 43.3% of them.

Among those who make lumbering either out of their own forest or by purchasing the standing trees from others, overwhelming majority entirely depend on the purchase of the standing trees belonging to others which account for 86.3% and those who purchase standing trees even a bit from others account for 97.4%, whereas those who obtain the timber entirely their own forest occupy but 2.6%, while those who get even a little from their own forest account for 13.7%.

As described above, there are many types of lumbering operators but those whose business scale is generally small and who are concurrently consumers are comparatively numerous, and they are doing their business primarily by purchasing the standing trees. There are quite a few of those who are not concurrently consumers of timbers, but their business scale is mostly still smaller.

It is well known that the lumbering operators have been gaining unfairly large commercial profit through the shrewd dealing with forest owners particularly with small and medium size owners of the forest by taking advantage of their poor technic of evaluating the volume of the standing trees, of their poor knowledge on the prevailing market price of timbers etc.

In this sense, the lumbering operators bear with them a strong characteristic of commercial capitalist, but due to the intensified consciousness on part of the forest owners for keeping their forest not as an asset but as an enterprise as because of the improvement of their technics for the the evaluation on the volume of the standing trees after the war, such unfair dealing and transaction which used to be conducted at the sacrifice of the forest owners have been greatly diminished. In the post-war days, the stepped-up construction of the forest roads and the improvement of the transportation by trucks have greatly shortened the time necessary for

hauling and transportation which in turn quickened the cycle of capital turn-over. This has further opened up a wider possibility even for the small capital to advance into lumbering business, and the number of lumbering operators drastically increased though there are some who are quasi-lumbering operators doing nothing but brokerage. In parallel with above, the lumbering by forest owners has come to be more widely practiced after the war.

The specialized lumbering operators who are not concurrently log consumers as appeared in the nation-wide survey presented above include such forest owners as mentioned before. Now, though the large scale lumbering operators are in competition with the small ones, they are usually in a mutually complementary relations because their respective domain of activity is different from each other (the former controls and takes advantage of the latter).

The mechanization of the lumbering processes is mostly focussed on the hauling and transportation but it is still not well balanced. The workers engaged in lumbering generally possess axe, saw, hatchet, wood-sledge, horse, etc. When this is viewed from capital side, the such type of labour supply means the procurement of labour as productive means and not purely as labour in terms of simple wage labourers where the wage is paid for the labour plus productive means or it is paid not for the labour but for the output itself, and thus piece-work wage system is introduced thereto. Herein lies the possibility for the role to be played by the contractors. (Ichiro Kahirara; *Ibid.* p. 218). However as mechanization and the capital structure advance, not only productive power but also the lumbering gradually become constant business and it comes to require always a given amount of labour. In this process, the labour in the form of labour plus productive means tends to be the labour per se and the necessity of the lumbering enterprisers themselves to make direct control over the labourers inevitably arises. However such transition can not be smoothly carried out. In the first place, the mechanization in the lumbering business is still unbalanced and some sections are remaining underdeveloped, and many of their mode of production are carried out on pre-capitalistic basis. Secondly, since the source of labour supply is agrarian-mountain villages whose labour is still inherently combined with agriculture, things are greatly regulated by the extent of disintegration of the social stratum of farmers, but as a matter of fact, their polarization is not advancing so rapidly. It must however be noted that the multiple job undertaking of farming house-hold tends to be popularized.

Thus, after all, in Japan, lumbering labour is dominantly of contractor type except a partial direct-hiring in the case of large lumbering enterprise. In the case of contract, the organization of labourers is a problem but this



will be observed later.

Where contractor is employed, the necessary machines for lumbering as well as other principal materials are supplied by the lumbering enterprisers, while the workers generally take care of consumer supplies besides their own axes, saws, hatchets, sickles, wood-horse, etc. When the contractor is employed, a written agreement is prepared where the contracting price unit, share of materials, working conditions to be observed by the labourers are stipulated.

As to the status of the lumbering labour, let us see its outline first by referring to the "Lumbering Wage-workers", a nation-wide sampling survey made by the Ministry of Agriculture and Forestry.

1. Distribution according to the type of job

According to the classification,

- a) Those who are specialized in one job and thus exclusively engage in it, are 35.8%. Further break-down is: those who "do only felling" 10.3% while the percentages of others are low.
- b) Those who rotate among other jobs are 27.3%.
- c) There are those who work for two types of job such as felling and logging, or log gathering and hauling, but the former excels in number than the latter. Inherently however, since the felling and logging or skidding and hauling are so closely allied to each other, they can sometimes be considered as belonging to the same job and if such aspect is taken into account, the trend to settle on the job is well observed, but the extent of such settlement varies according to the districts.

2. Distribution according to whether the labour is local or migrated, specialized or of side-job.

- a) Viewed from whether they are local or migrated, the number of local labourers are overwhelmingly large occupying 93.3% of the total.
- b) When the working days of lumbering labourers are analyzed according to whether they are local or migrated, whereas the local labourers occupy high percentage among those whose working days are few, high percentage goes to the migrated workers as to those whose working days are many. Namely, there is an indication that the local labourers tend to be side-workers, while migrated labourers are specialized workers. However, as to the number of labourers whose working days per year are more than 150 days, the local workers are definitely more than the migrated workers. The local labourers are mostly side-workers but the majority of the specialized workers are local labourers.

c) According to the classification of whether specialized workers or side-workers, the latter occupies overwhelmingly greater proportion as Table 3 indicates. Among the side-workers, the majority are those engage in self-farming. The major break-downs of "jobs other than self farming" are jobs for aforestation, hired-wage work for farming and wood processing, self operation for fire-woods and charcoal manufacture etc., and thus most of them are working in connection with forestry or agriculture.

It goes without saying that the number of annual working days of the specialized workers is high and 88.8% of them worked more

Table 3. Number of workers classified by working days per year.  
(According to whether specialized or side-workers (1956))

Classified by working days per year According to whether spec. or side-workers		less 30 days	30-60d	60-90d	90-120d	120-150d	150-180d	180-210d	210-240d	over 240d	Total
Actual No.	Specialized	12	26	31	48	99	205	485	425	594	1,925
	Side Work										
	Self farming	1,045	1,149	1,292	934	764	638	646	262	224	6,954
	Other jobs besides self farming	501	482	410	310	247	202	156	39	26	2,373
	Jobs other than self farming	174	221	199	162	133	155	183	86	50	1,364
	Total	1,732	2,021	1,789	1,454	1,243	1,200	1,490	812	894	12,615
%	Specialized	0.6	1.4	1.6	2.5	5.1	10.6	25.2	22.1	30.9	100.0
	Side Work										
	Self farming	15.0	18.6	16.5	13.4	11.0	9.2	9.3	3.8	3.2	100.0
	Other Jobs besides self farming	21.1	20.3	17.3	13.1	10.4	8.5	6.6	1.6	1.1	100.0
	Jobs other than self farming	12.8	16.2	14.6	11.9	9.8	11.4	13.4	6.3	3.7	100.0
	Total	13.7	16.0	14.2	11.5	9.9	9.5	11.7	6.4	7.1	100.0

Remarks: Ministry of Agriculture and Forestry: *Survey on wage-workers for lumbering, outline of Primary Result*, p. 10.

than 150 days, while the majority of side-workers worked less than 150 days.

### 3. Relations with farming

Majority of lumbering labourers are on the other hand engage in agriculture and the scales of their farming are indicated in Table 4.

a) Those whose farming areas are less than 5 tans occupy more than half of the total, while those having up to 1 cho covers 87.2%. When they are observed according to the region they hail from, the weight of the number of lumbering wage-workers whose scale of farming

Table 4. Number of workers *classified according to the scale of farming land and by the working days for lumbering per year*

Working days per year for lumbering	less than 30 days		30-60d		60-90d		90-120d		120-150d	
	Actual figure	%	AF	%	AF	%	AF	%	AF	%
Scale of farming land										
Non	—	—	1	0.1	—	—	2	0.2	—	—
Less than 3 tans	175	12.4	185	11.9	202	13.8	258	20.6	316	30.0
3-5 tans	251	17.7	357	23.1	418	28.5	384	30.7	339	32.1
5 tans-1 cho	598	42.3	712	46.0	642	43.9	478	38.3	337	32.0
1-2 chos	342	2.22	781	7.91	81	12.4	120	9.6	59	5.6
Over 2 chos	76	5.4	16	1.0	19	1.3	7	0.6	3	3.0
Total	1,414	100.0	1,549	100.0	1,462	100.0	1,249	100.0	1,054	100.0

  

Working days per year for lumbering	150-180d		210-240d		Over 240d		Total	
	AF	%	AF	%	AF	%	AF	%
Scale of farming land								
Non	—	—	4	0.9	3	0.7	10	0.1
Less than 3 tans	476	48.8	217	49.8	204	50.4	2397	25.3
2-5 tans	261	26.8	172	29.1	107	26.4	2514	26.5
5 tans-1 cho	184	18.9	68	15.6	76	18.8	3352	35.4
1-2 cho	52	5.3	19	4.4	15	2.7	1080	11.4
Over 2 chos	2	0.2	1	0.2	—	—	127	1.3
Total	975	100.0	436	100.0	405	100.0	9,480	100.0

Remarks: Ministry of Agriculture & Forestry:

*Survey on wage-workers for lumbering, outline of Second Survey Results* p. 21  
(Hokkaido is excluded)

1 tan=0.1 cho 1 cho= $2\frac{5}{6}$  acres

land is extremely small gets higher as their homes go toward mountainous villages.

- b) When viewed from their working days per year, smaller the farming lands are, more days they work per year. Next, let us see to what extent the side-workers are engaged in their own farming. It is found out that the majority of them are playing a pivotal role in farming during the normal time, those who work on the field only for the harvest and planting seasons as well as those who assist agricultural work follow, while those who do not engage in farming work but just command the agricultural hands are few.
4. Regarding their position in the house-hold, those who are the house holders or the eldest sons of the families occupy comparatively larger proportion but the inclination toward being wage-workers for lumbering is fundamentally determined by the scale of farming. In the case of the house-hold of petty farmers, masters of families as well as the eldest sons become specialized in lumbering work and the farming itself comes to be operated by other family members. It is already mentioned that there are specialized workers among the lumbering labourers though their number are few. Further, according to Table 4, there are those who are completely severed themselves from farming though they are extremely few but such labourers are not supposed to be so rare in the case of the state forests or even in some of the private forests where capitalistic production is developed.

I have so far observed the outline of the status of the lumbering labour which will be further supplemented by the findings made by our surveys through the observation by putting N contractor who tied-up with a large lumbering enterprise in contrast to M contractor who tied-up with small size lumbering enterprise.

1) Age and the position in household

The average age of those of N contractor (hereinafter simply called N) is 24 years old while that of M contractor is 30 years old. As to the position in household, family masters, eldest sons and the second sons have respectively almost same weight, while the weights of each family master and the eldest son almost get even in M.

2) The years of experience of forestry labours

The average calendar years of experience are 8.9 years for N and 12 years for M. The average net years of experience are 7.9 years in case of N and 5.4 years for M. The fact that the calendar years of experience is long in M indicates that their ages are quite advanced. Next, the rate of net experience years is 88.8% for N

while that of M is 39.2%.

The rate of net experience years is an indication of the degree of settlement and specialization of the workers to the forestry labour and in this connection it can be said that the workers of N have very strong trend to stick to and specialize in forestry, while those of M carry with them a character of being side-workers.

3) The rate of working period of forestry labour

The average rate of working period of the forestry labourers of N is 70.9% and that of M is 35.8% and here is also indicated the respective characteristics of being specialized worker in the case of N and of being a parttime worker in case of M.

4) Working days and working months.

Please refer to table 5 and 6 to see working days and working months which are the direct reflection of the labour settlement and specialization in forestry labour. First, the average working days per

Table 5. Number of workers classified by working days per year and by working months-N contractor (1959)

Working days Working months	less than 150 days	150 180d	180 210d	210 240d	240 270d	270 300d	over 300d	Total	Average yearly working days	Average monthly working days
6 months	1							1	120	20
7 "										
8 "										
9 "										
10 "		1						1	170	17.4
11 "				1				1	214	19.5
12 "				2	1	1	1	5	263	21.9
Total	1	1		3	1	1	1	8	215	20.8

Table 6. Number of workers classified by working days per year and by working months-M contractor (1959)

Working days Working months	less 150d	150 180d	180 210d	210 240d	240 270d	Over 270	Total	Average yearly working days	Average monthly working days
9 months		1					1	164	18.2
10 "	1		2	1			4	192	19.2
11 "									
12 "						1	1	275	21.1
Total	1	1	2	1		1	6	301	19.5

year are 215 days for N and 201 days for M, while the average monthly working days are both have quite a many working days with almost no difference observed between the two groups.

Next, when the working months are viewed, in case of N, they worked over 10 months except one worker who worked 6 months, while for M, except one worker who worked 12 months, all worked 9-10 months. The one person just mentioned of M is headman who has completely done away with agriculture, while five others still have, more or less, something to do with farming. Thus the workers belonging to N bear strong feature of being specialized, while those of M still retain characteristic of being side-workers though they are shifting gradually themselves toward being specialized workers.

#### 5) Relations with farming

Table 7 shows the farming scale of the workers of both N and M and their working days for farming. First, looking into those of

Table 7. No. of workers classified according to farming scale and working days for farming-N contractor (1959)

Scale of farming \ Working days for farming	Non	less than 20 days	20-40d	40-60d	Over 60d	Total	Average working days for farming
Non	1					1	
Less than 3 tans		1			1	2	40
3-5 tans		3				3	9.3
5 tan-1 cho		2				2	8.5
Over 1 cho				1		1	40
Total	1	6		1	1	9	18.4

Table 8. No. of workers classified according to farming scale and working days for farming-M contractor (1959)

Scale of farming \ Working days for farming	Non	less than 60 days	60-80d	80-100d	Over 100d	Total	Average working days for farming
Non	1					1	
Less than 5 tans							
5 tans-1 cho			1	1	1	3	99
Over 1 cho			1	1		2	77
Total	1		2	2	1	6	90.4

N, the farming scales of two thirds of them are less than 5 tans, whose average working days for farming per year are but 18.4 days. Even those who have the farming scale of more than 1 cho, have worked for farming just 40 days per year.

As for M, except the headman all of its workers belong to the farming household having the arable land of over 5 tans and one thirds of them are the farmer having more than one cho. Besides, their yearly working days for farming are much more than those of N. However when this is put into contrast with the working days of forestry labour of M (Table 6), it is found to be far less. Thus the relations with farming can almost be disregarded in the case of N, while as for M, the workers are still related to farming to a certain extent, they are definitely shifting themselves to forestry labour.

#### 6) Mobility between other jobs

The workers of N are more or less mobile but little mobility is seen except between forestry and farming. Namely, if their careers are reviewed, it is found out that they all once worked for forestry except one who joined N after having been car-driver and construction worker. There are two who worked as industrial wage-workers besides for forestry. However regarding M, there are none who had experience in the jobs other than those for forestry and agriculture. As seen above, the workers of N tied-up with a large lumbering enterprise should therefore be defined as rather specialized forestry wage-workers.

On the other hand, the workers of M who are bound with small lumbering enterprise should still be considered as sideworking, semi-agricultural wage-workers though they are gradually assuming a growing characteristic to be specialized forestry workers.

As the matter of fact, the large lumbering enterprises are carrying out a regular and quantities of log lumbering for which mechanization is being made, and thus they have come to require increasingly modern wage-workers, while small scale lumbering enterprises do lumbering rather on irregular basis and accordingly the log lumbering is done on a small scale and the mechanization is advancing rather slowly, thus side-working or semi-agricultural wage-workers are demanded accordingly.

At the current stage of lumbering labour, side-working, semi-agricultural wage-workers are dominant existing form but specialized wage-workers are emerging as described above and this will be the trend to be hereafter intensified.

The labour market for forestry in the agrarian-mountain villages is generally very segregational but it is noteworthy that labour mobility is gradually starting to take place.

In comparison with the urban workers the forestry labourers in agrarian-mountain villages are insufficiently protected by labour laws and social security, hence their working conditions are poor, and naturally the wage is lower than other branches of industry. The main reasons for this are found in their low standard of living, the potentially excessive population in such agrarian-mountain villages and in semi-working, semi-agricultural characters of forestry labour as mentioned above. These are important problems but I have just pointed them out here.

#### IV

The reason why the contracting system has come into existence for lumbering labour has been already mentioned but there are two forms of contracting system, i. e. labour contracting system and project contracting system. The headman system which is believed to be still popularly existent in forestry, is an intermediary type standing in between the said two systems but it carries with it a strong feature of being a labour contracting system (contractor for labour supply). First, the headman system is to be reviewed according to the survey made as to the state forests (*Research report on the wage of forestry labour*, by Forestry Agency).

The function of the headman is divided into the supervisions of job and labour. The latter further consists of hiring workers and the supervision of wage and living of the workers. Regarding the job supervision, the headman is in charge of job planning, routing, job assignment, instruction of the method of job performance, control of job progress etc, and in some cases he does only commanding and supervision and in other cases, he himself too engages in a job.

As to the labour hiring among others of labour supervision, the headman himself looks for the workers and hires, but in the state forests it is shifting toward direct employment. Wage supervision means the bargaining of unit price of the contract by the headman, checking of the worked days of the labourers, determination of wage distribution rate and the wage payment etc. Sometimes the headman lends tools in his possession such as wood-sledge to the workers charging them fees. Thus the headman performs comprehensive functions as described above as a man in charge of job and labour supervisions, and in a sense he covers the function of a foreman of a modern industry and that of a man in charge of labour-relations of a factory.



However the headman system inherently differs from the modern labour organization or employment system as to the following two points: in the first place, its employment pattern is far from being modernized. In the case of modern employment, it is a fundamental rule that the workers are directly to do with the capital owners by way of labour contract where workers engage in jobs according to the labour contract as well as to the working regulations for which wages are directly paid. However under the headman system, the labour contract is concluded between the headman and the enterpriser and thus the former tries to get profit by intermediating the buying-selling of the labour as a commodity, while he has, on other hand, a contractual relation with the labourers. Thus the labourers, though they receive wages by performing the job for the enterpriser, are employed directly by the headman and they are related to the enterpriser only through the intermediate of the headman. It is with such background that dual unit prices of labour come to be existent, one in between the headman and the enterpriser, the other in between the headman and the workers. The very existence of such dual unit prices that make the intermediary exploitation possible, is the economic basis upon which the headman system depends.

Another characteristic of headman systems the self-standing nature of headman in his supervision of job and labour.

In the second place, the headman system is a residual of the social relations of olden-times.

In the modern employment, while the worker contract with the employer as a free worker and as a man having equal human rights, under the headman system the worker's liberty is restricted. The headman controls living quarters (he even makes profiteering from the cookery of the laborer's living quarters), always watches the workers, and completely places them under his command by performing a function of mutual relief, sometimes lending money, of looking after their living etc. The workers under him, in return obey him, and thus a relation between the boss and henchman takes place. This relation is comparable to that existing in the agrarian villages between the headhouse and branch-house, landlord and tenant based on kinship and land-ownership etc.

However, the headman has come to assume his position because of his experiences and the technical ability that he acquired in the local forestry, and thus the said relation is not a direct reflection of such social ties existing between the landlords and tenants or those between the headhouses and the branch-houses. The relation between the headman and his workers is rather based on economic factors, and yet the headman is securing the employment channel only by retaining his position, taking advantage of the

conventional social status, as well as the paternalistic or communal consciousness (*gemeinschaftliches Bewusstsein*) still functioning in the local agrarian villages which are helping create the boss-henchman relations.

This headman system is widely existent in such labour sectors where the productive power is low and the modernization is less advanced. Thus, it is easily inferred from what has already been observed that the various conditions that are continuing to allow the headman system function in the forestry, are existent in both lumbering business and the lumbering labour. However, as the lumbering business progresses, mechanization advances and when constant forestry production be performed, and thus the lumbering labour becomes more specialized and modernized, the headman system will be inevitably doomed to fall off.

On the other hand, due to the labour laws and the labour standard law promulgated after the war, the supply business of labour has been prohibited, while the Farmland Reform has disintegrated the feudalistic relations between the land-lords and tenants in the agricultural villages, and the modern social relations are coming to be dominant also in Japan. As far as the state forests are concerned, the headman system is rapidly losing its ground under the pressure of the policy pursued for the democratization imposed from above, as well as at the onslaught of labour movement directed from below, with the social changes as described before as its back-ground.

Also in the private forests same trend is observed and in the several cases where our survey was made, headman system was almost non-existent. For instance in N and M contractors, except the function exercised by the headman for job supervision, (in the case of M, even this function has become weakened) all other functions were virtually lost.

As the matter of fact, collective bargaining is held for the contract between the workers and though it is only the headman who signs in the contract paper, in substance it is the collective contract, and the dual unit prices are no longer existent leaving no room for intermediary exploitation for headman. In both cases (M & N), the headmen themselves engage in the forestry labour and the workers concerned including the headman were determined by the collective deliberation among them, hence so long as there is no difference in the technical ability, the wage amount is same and no special allowance is given to the headman. Even in the case where cookery is conducted in the living quarters of the workers, the old relations as mentioned before is no longer existent. Both N and M contractors have done away with the pre-capitalistic headman system and are considered to have been modernized.

Though there is a school of thought contending that the headman system

could be considered a necessary evil at the current stage of forestry technics in Japan, and that the non-modernity of social status within the contracting group and the labour placement form of headman system are the two different problems, and though the backwardness of the technical development is surely one of the factors that brought about the headman system, yet it should not be discussed apart from the social backgrounds.

I have so far observed the forestry labour in Japan by dividing it into afforestation labour and lumbering labour. For the former, side-working, temporary and semi-agricultural labour is dominant, hence the labour procurement is primarily done by direct employment, while for the latter, though side-working, temporary and semi-agricultural labour is also occupying dominant majority, specialization, on the other hand, seems to be gaining ground and the labour procurement is primarily made through contracting method. In this connection, though pre-capitalistic headman system had once been widely practiced, it has been rapidly liquidated after the war and the modernization is advancing also in the forestry labour.

There are still many problems as to the labour conditions, wages etc. but these aspects of forestry labour will be discussed on some other occasion.